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IN PREHISTORY of Pennsylvania



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Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Harrisburg, 1965

DOCUMENTS SECTION

ACKNOWLEDGMENT

The painting on the cover of Lappawinzoe, a chief man of the Delaware Indians in Pennsylvania, by Gustavus Hesselius (1682-1755), was commissioned by John or Thomas Penn, probably about 1735. Although these people had been in contact with Europeans for a century, Lappawinzoe's portrait shows little evidence of it. The original is at the Historical Society of Pennsylvania, Philadelphia.

INDIAN PREHISTORY
of
PENNSYLVANIA

By
John Witthoft

Commonwealth of Pennsylvania
Pennsylvania Historical and Museum Commission
Harrisburg, 1965



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INDIAN PREHISTORY of PENNSYLVANIA

INTRODUCTION

INDIANS had lived in what is now Pennsylvania for thousands of years; yet when Europeans began to arrive, the Indians had neither books nor records to reveal their past. Until the last twenty years the study of the Indians' past had to be confined to the sparse record of events on and beyond the frontiers of settlement. These were events of tragic importance to the natives, but they took place during a time which was brief in comparison with the centuries they had lived in North America. New light has been shed on these centuries, however, by archeologists deciphering the remains of human life: the tools, refuse, and signs of habitation which man incidentally, but necessarily, leaves behind.

Archeology attempts to give us a clear picture of early peoples and their ways of life. What were our Indians really like? What was their physical appearance? How did they dress? What tools did they use? How did they live?

Human life is replete with invention and change. Archeology traces the several stages in the growth of American Indian civilizations. Slow as this growth was, the way of life of our Indian peoples underwent changes so great that different ages are characterized by the existence of entirely different cultures.

It will be impossible in this publication to explain the way in which Indian remains and relics are studied, how data is collected and interpreted, or the precise evidence for each conclusion given. Rather, we shall try to picture men and their ways, and to outline their progress in the arts of life, and their gradual development of some of the tools and institutions of primitive civilization.

MAN OF THE FOREST

Indian man himself can be known best from the grave where his family laid him to rest. During all periods for which we have skeletal material, we see the same type of man, of the same build, features, general appearance, and racial type. Even our earliest skeletal ma-

This booklet is a revised version of a series of articles, "A Brief History of the Indian Hunter," by John Witthoft, published in 1954 in the *Pennsylvania Game News*.

terial from the Northeast, more than 5,000 years old, represents Indians like those of the colonial frontier, and like some of the surviving people on our reservations today. Earlier than this we have no skeletal material from any part of the Americas; we do not yet know much about the Indian of earlier times, who is represented only by his tools.

The Indian of our eastern forests was a small man, rarely more than five feet, five inches tall. He was of very slight build, and probably weighed no more than 130 pounds. His bones were especially light and delicate as compared with almost all other human types. Delicate modeling of the facial bones and thinness of the skull bones is conspicuous in Indian skeletons. Despite this, he was almost always an exceedingly muscular man, as is indicated by the form of those parts of his bones which were at the ends of muscle bundles. All evidence from the skeletons suggests that the Indian was wiry, strong, and extremely tough. He had a strongly sculptured face as compared to the Caucasian, with jutting cheek bones and a large, well developed palate and dental arch. Despite this, his teeth were subject to the same decay and diseases as ours, and to much more wear; he had ordinarily lost all but a few of them before he was thirty-five years old. He did not chew the way we do, but bit his tough food with his incisors edge-to-edge, grinding with both his front teeth and molars. Eskimos still chew this way, because they still live on a tough diet.

The Indian of the forest seldom lived to his fortieth birthday, usually dying before he was thirty-five. His diseased teeth and the infections they caused were probably a prelude to death. Hunger, exposure, and hunting accidents were probably the other major causes of early death. Various arthritic and rheumatoid diseases were remarkably frequent and often severe, judging by evidence from the skeletons. The Indian was a tough, wiry little man who carried many physical defects and who was constantly exposed to the worst rigors of our climate. He slept curled into a ball, with his knees under his chin, a habit acquired during a lifelong struggle against a cold and brutal natural world. He was a man who lived very hard and died young. This is not the Indian of our romantic literature, but it is most certainly the Indian whose bones we study.

THE AGES OF PREHISTORIC MAN IN PENNSYLVANIA

Conditions of life and ways of doing things were no more static for the Indian than they were for other peoples, and archeology is our only way of discovering and understanding the long development of Indian life and technology. At the present time we recognize Indian

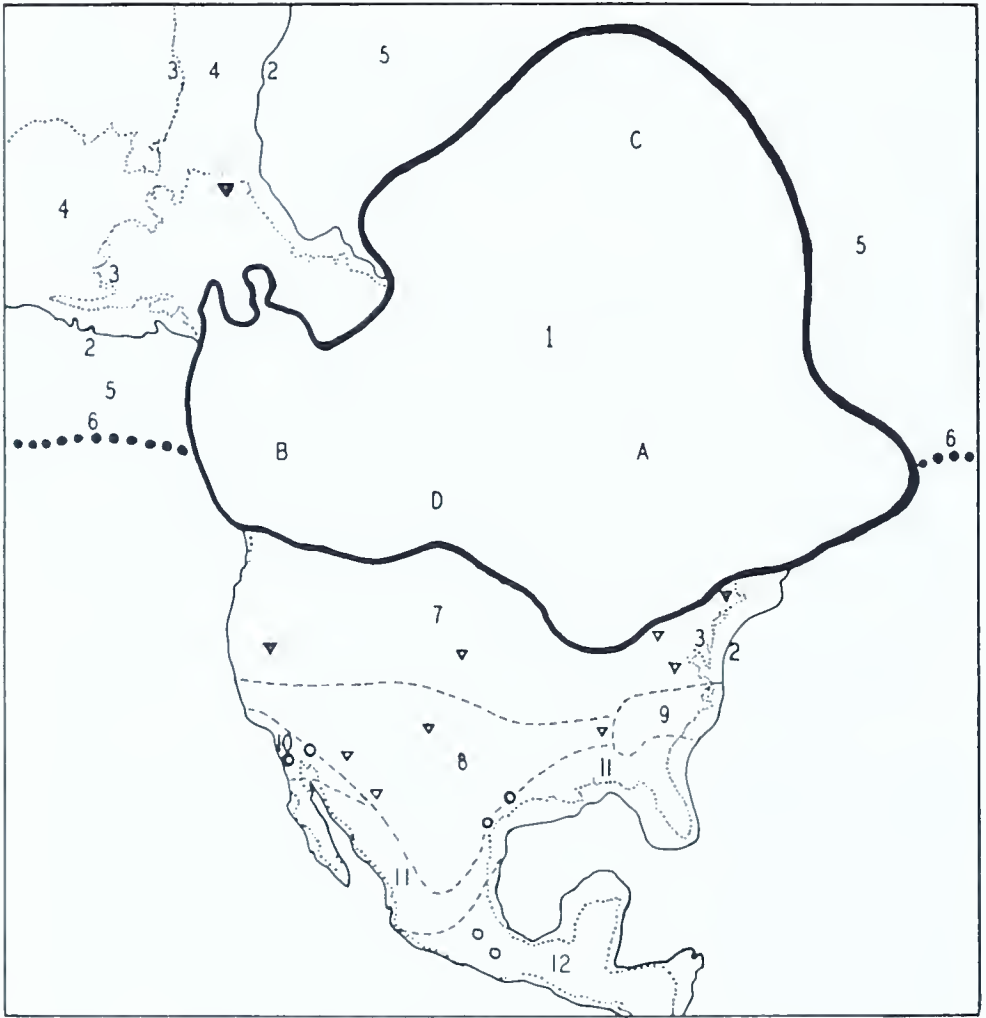
Paleo-Indian Epoch	18,000 to 8,000 Years Ago	Hunters of Big Game Animals of Extinct Types
Archaic Epoch	8,000 to 3,000 Years Ago	Hunters of Small Game and of Wild Plant Foods
Woodland Epoch	3,000 to 400 Years Ago	Farmers, Fishermen and Hunters

THREE GREAT AGES OF PENNSYLVANIA INDIAN PREHISTORY

prehistory as having gone through many stages; these will be outlined under convenient labels representing major and lesser divisions. All of Indian prehistory is divided into four long ages, called epochs, which are divided into periods, which in turn are subdivided in several ways. In this booklet our concern shall be the major divisions, epochs and periods, during which Indians lived in Pennsylvania, and the hunting tools, game animals, and general way of life during each division of time.

The Paleo-Indian epoch began more than 12,000 years ago, probably almost 18,000 years ago, and ended perhaps 8,000 years ago. We have no idea what man of Paleo-Indian times looked like. He chipped all of his tools from flint, using no other stone, and never shaped a tool by battering or grinding. The climate which he faced and the vegetation were very different from what they are now. He lived entirely by hunting, and he killed animals which are entirely extinct and which, in fact, did not survive into later epochs of the Indian past.

The Archaic epoch began about 8,000 years ago and lasted until about 3,000 years ago. Archaic man is well-known from his graves, and was of the same general appearance as the Indians known to our own ancestors. He made some of his tools by chipping, but he also used stones other than flint, and he formed many of his tools by



A SCHEMATIC MAP OF NORTH AMERICA DURING THE WISCONSIN 1 (THE LAST MAJOR) GLACIAL STAGE (Wurm 2 in European terminology), between 15,000 and 12,000 years ago. The boundaries are approximate, since they were continually shifting; however, this map fits a date of 18,000 years ago best. The continental glacier (1) was a continuous mass of ice, several miles high, which determined its own wind system and snowfall and dominated the climate of nearby areas. It grew from three centers where the ice was thickest and from which ice flowed outwards. The Laurentian center (A) was the most important, the Greenland center (C) the least important, and the cordilleran center (B) the most fluctuating. The margins of the glacier moved in and out; in the area of D particularly, the northern Plains, the ice was thin and the margin of the glacier constantly shifted; this area may have been completely free of ice at times.

Because so much water was frozen into glaciers all over the world (temperatures everywhere being much lower than now), sea levels were hundreds of feet below present levels. Solid lines (2) mark the coast lines of North America during this glacial stage. The present coastline, more than three hundred feet above the old, is shown by a dotted line (3).

Alaska and the Siberian peninsula were joined by a broad land bridge because

battering and grinding them into shape. He hunted animals of species which still exist in the woods about us, but he did not live entirely by hunting; he collected many wild edible plants and had begun to supplement his meat and vegetable diet by fishing. In the Northeast he did not yet eat shellfish, although he did depend upon such food at times in other areas, such as Florida and the Mississippi Valley. He did not farm. He made no pottery cooking vessels. He apparently roasted his meat instead. Neither had he begun to cultivate and smoke tobacco.

The Woodland epoch began about 3,000 years ago and ended when Indians fled beyond the frontier of white settlement or adapted the ways of the white man. The Woodland Indians lived by farming, hunting, fishing, gathering wild food plants, and digging shellfish. They made pottery vessels and seem to have preferred usually to boil their foods into soups and stews. They built permanent houses, and lived among their cultivated fields in little villages or on individual farmsteads. Before this time the women and children had followed the men from camp to camp in search of game. In Woodland times the household stayed in one habitation and the men

of the lowered sea levels; this flat continental shelf is 4. The whole area of Alaska-Siberia escaped the glacial ice because its snowfall was so limited. It was covered by a tundra vegetation which supported herds of reindeer, woolly mammoth, and musk ox. Beneath the living surface of the tundra, the ground was permanently frozen for many hundreds of feet, as it still is. The Arctic Ocean was not covered by glaciers since there was very little snowfall. It was deeply frozen, and covered by pack ice (5), a thick layer of fresh-water ice floating upon salt ice and salt water. The southern limits of the pack ice are marked by a heavy dotted line (6).

South of the margins of the glacier, the ground was permanently frozen for many hundreds of feet. Powerful winds swept down from the glacier at night and great torrents of flood-water poured out from the glacier in the daytime. This area (7) was a tundra like that found west of Hudson's Bay today, not so cold as that of Alaska-Siberia, but lacking trees or large shrubs and supporting the same arctic mammals. The cold grasslands south of this (8) were like the plains of Saskatchewan today, and supported herds of the Columbian elephant. The spruce forest (9) had more rainfall; its climate and biology were like that of northern Ontario today. The western coniferous forest (10) was like the modern landscape of Oregon. Zone 11, the mixed hardwood forest, was like the landscape and climate of Pennsylvania today. Zone 12, the sub-tropical zone, was an extremely varied region of rain forest, savannah, and sub-desert.

The most important campsites of the Paleo-Indian cultures (the Clovis Complex), which prevailed upon the tundra and grasslands where the people hunted large grazing mammals, are marked by triangles. These sites are believed to be between 12,000 and 18,000 years old.

The most important sites of the Proto-Archaic cultures, which were in the forests and on their edges, are marked by circles. They are thought to range in age from 12,000 to 45,000 years.

traveled to the game, often for great distances, while the women stayed at home and tended their gardens.

PROTO-ARCHAIC MAN

The most difficult problems in American archeology, those which stir the greatest controversy, concern the earliest Indians, the people of the Proto-Archaic epoch, who apparently did not live in Pennsylvania. Sites where Proto-Archaic people camped 30,000 years ago have been discovered in Mexico, Texas, and Nevada. Tools found at these sites are made of quartzite, not flint; they resemble the quartzite tools of the early period of the Archaic epoch of the eastern United States. Few sites have yet been identified. There are no spear points or spear point-shaped knives. Tools are massive and crude and for this reason are seldom recognized. A quartzite chip, used as a knife, and the chopper, a large knife and wood-working tool with beveled cutting edges, are the two main types. Choppers of the early period of the Archaic epoch, which are the same as those of the Proto-Archaic and thus difficult to identify, are shown on page 15. These were still important tools 9,000 years ago, used along with spear points and other more familiar tools. In later Archaic sites they become fewer, disappearing finally by Late Archaic times, 5,000 years ago.

Proto-Archaic cultures flourished during the last major glacial stage, prior to 12,000 years ago. This was an age of intense dry cold. Pennsylvania, as yet uninhabited, supported a tundra vegetation like that of Baffinland in far northern Canada. It had no forests. Woolly mammoth, musk ox, arctic lemming, and the other creatures of the far north lived on the mosses, grasses, and dwarf shrubs of the tundra. The soils were deeply frozen, their surfaces constantly thawing and refreezing.

The most serious problem confronting the archeologist studying the Proto-Archaic epoch is the fact that practically all the soils were eroded away during the last major glacial stage, destroying any archeological record that they might have contained. There are very few places in Pennsylvania where any remnants of soils more than 30,000 years old can be found. Studies of the Proto-Archaic epoch are possible farther south. In North Carolina, Proto-Archaic tools are not found in place, but rather in soils which have been moved downhill by soil creep and piled against lower slopes of the mountains. On the Carolina Piedmont, where older soils are to be found, erosion has been so great that all of the ancient tools lie on the surface, those of all cultural stages mixed together.

THE FIRST SETTLERS

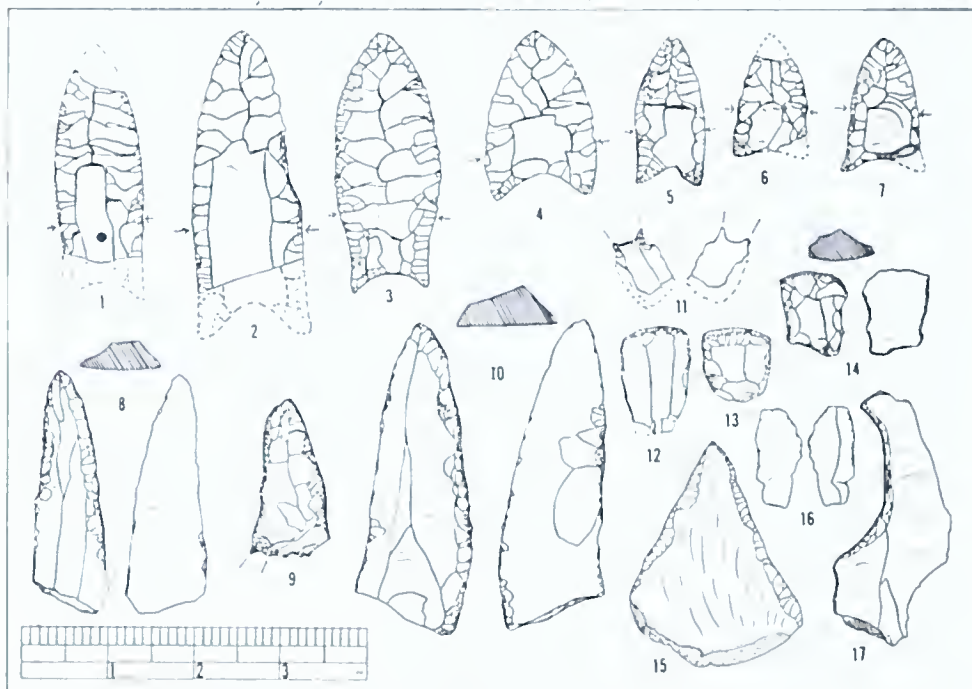
Daniel Boone may have said that he was the first human to set foot on some of the wilderness of Kentucky, but it is doubtful that he believed this, for it charges him with two points of ignorance; namely, that he had no knowledge of other illiterate borderers who had preceded him, and that he did not consider the Indian to be human. In fact, Kentucky had been a dark and bloody ground years before, in Indian wars of which Boone and other whites had never heard. It was an ancient and well-known part of Indian geography, as venerable and wrapped in Indian tradition and mystery as the white man's Ninevah. The New World was new only to Europeans; in the annals of man, it must be listed as an ancient world indeed, silent witness to more than 15,000 years of human achievement, fulfillment, and tragedy. This was long before trade in spices and drugs, and dreams of feudal wealth, brought Columbus to the summer islands. The fact that their history was recorded in books and documents may have satisfied our forefathers, and given them great comfort in matters of ego; nevertheless, the real story of human affairs is no mere chronicle of "pen-and-paper work," but a noble tale of the blood, seed, and works of humanity at large. So let us put aside Columbus, Boone, and others whose shadows fall across our textbooks, and see how much we can discover of the ways and times of the real explorers and venturers, the men and women who carried the human stock into all parts of the world in ancient and unrecorded times.

There are two stories of exploration; the only one we ordinarily consider is a fragment of the growth of European knowledge, a history of voyages, maps, descriptions, and conceits. As a matter of fact, everywhere that the first European explorers traveled in the parts of the world which were new to them, they ate the food, accepted the hospitality, and followed the travel directions of people already living in those parts. Exploration in the age of Columbus was not a little like setting out to cross France with a full wallet and a large bodyguard.

The epics of the lives of primitives, if they ever be written, include very different types of exploration. Ten thousand years ago the world was full of humans; men of completely modern appearance, but with primitive tools and techniques, had penetrated to every habitable corner of Asia and Africa, Australia and Tasmania, North and South America.

Since that time, there have been only two new human penetrations into any large part of the lands of this world, only two entries into regions where no one lived and man had never trod before. The first of

these was the discovery of the far-flung islands of the Pacific by the Polynesians, whose desperate sailing voyages on the open seas had taken them to every island of any importance before 1300 A. D. They filled the last great void in our world which was available to human settlement. The other new land was Antarctica, which will not support human life and which was first touched by men within the past century. The Arctic was not such a new world; everywhere in the northern regions, the evidence of archeology indicates that Eskimos had long preceded whites in exploration of every bit of land and even of vast northern ice floes, and that Eskimos had long lived on arctic lands where the white explorer could scarcely survive with imported supplies. The most southern parts of South America were occupied by Indians 10,000 years ago, their forefathers having come there from Asia by way of North America, Alaska, and Siberia. Where



FLINT TOOLS OF THE PALEO INDIAN EPOCH, 8,000-16,000 years old; fluted spear points, Nos. 1-7; side scrapers, 8-10; graters, 9 and 11; end scrapers, 12-14; knives, 15, 16; spokeshave or shaft scraper, 17. No. 1 is of blue-green flint and was found near Pittsburgh. No. 2 is a composite drawing of two broken, uncataloged specimens found near Highspire, Dauphin County. Nos. 1 and 2 are of whitish chert, and resemble the fluted points found at Clovis, New Mexico. No. 3 is of Pennsylvania jasper, very much rotted, from the Wyoming Valley. No. 4 is a white chert fluted point found in northeastern Lancaster County. Nos. 5, 8, 9, 11, 13, 14, and 16 are from the Shoop Site in Dauphin County, and are made of Onondaga chert from western New York. No. 11 is an engraving tool, and the lines point to the cutting points. Nos. 6, 7, 10, 12, 15, and 17 are from the Wilhelm Site in Lebanon County, are all made of Pennsylvania jasper, and are in the collection of Sam S. Farver at Palmyra.

does this leave Columbus and the discovery of the "New World," except as the approach of a vanguard of Spanish armies?

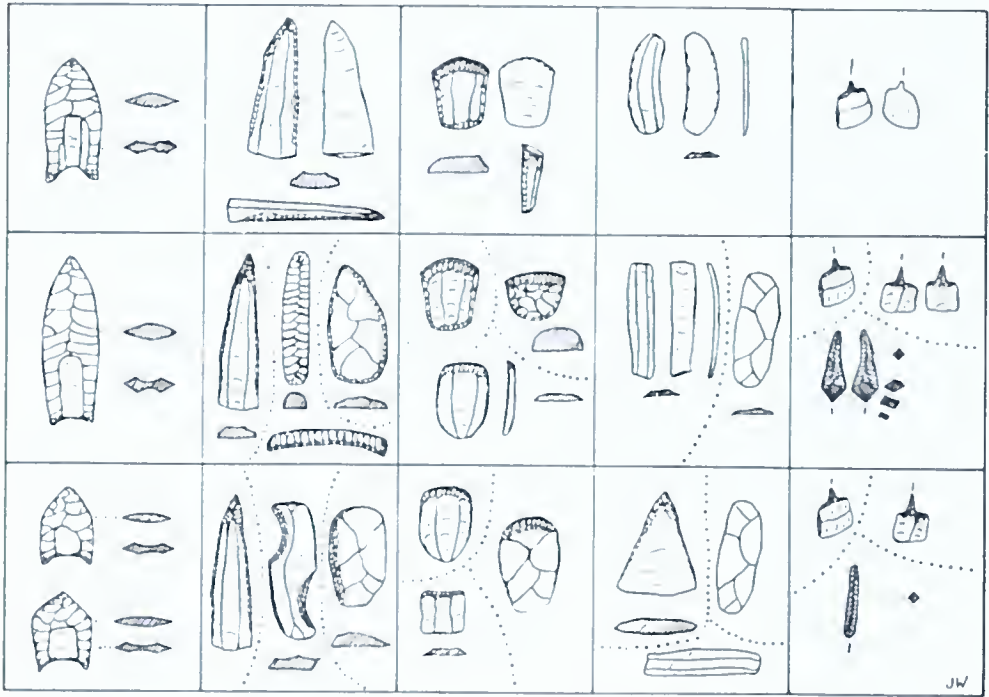
PALEO-INDIAN MAN

The earliest settlers in what is now Pennsylvania are known best from the Shoop Site in Dauphin County. The best known Paleo-Indian site in North America is at Clovis, New Mexico. All of our evidence about the animals Paleo-Indian men hunted comes from western sites; the largest part of our information about their tools comes from Pennsylvania, although their spear points have been found and studied in all parts of North America. They lived here during some of the warmer stages of late glacial times, probably living at the sites just mentioned about 15,000 years ago. They hunted with stabbing spears or lances, tipped with very delicately-made and easily-recognizable flint tips; their favorite game animal was the elephant—the extinct American mammoth and related animals. As a matter of fact, no animal bones, except those of several species of elephant, have yet been found in the sites that have been excavated, although other animals must have been eaten. Apparently our first hunters preferred a large family-sized meat package when they could get it, and they probably were the agents who exterminated the American pachyderms. These people were not numerous, and they moved rapidly over the countryside in pursuit of game, so that the sites where they camped are small and hard to find, and do not have relics in any abundance. They made and used only a few kinds of tools, and these are quite different from those made by later Indians.

The most distinctive tool of the Early Paleo-Indian period is the fluted spear point. It is slender, fairly thick and heavy, two to four inches long, of simple shape without stem or tang, and it has a groove carefully chipped on each face. This groove was formed to grip the split shaft of the spear firmly, so that the point could be glued and lashed very securely to the lance. Hunters of big game cannot take chances on a lance tip coming loose or twisting on its shaft in use, and the grooves were an important feature in the manufacture of a rigid lance.

The commonest tool of this early period was a planing blade or "end scraper," with a beveled shaving edge at one end, probably used in shaping tools of wood and bone. The other ordinary tools were long side scrapers with beveled edges tapering to a point, probably used in skinning game and tanning hides, and long, parallel-edged slivers of flint which were used as knives, probably in butchering. The only other tools found at the Shoop Site in Pennsylvania are

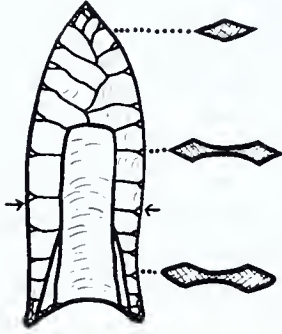
chips with little points shaped on the edge; these were probably used in working bone, especially in the manufacture of bone needles. All of these objects, which represent the total tool kit which has survived decay, are chipped from flint, and none are made of other stones or formed by any other technique than chipping. These cutting and scraping tools are very much like those of later stages of the Old Stone Age in Europe and western Asia. They are especially like tools of a somewhat earlier period from the great grasslands of the Ukraine, where ancient men also depended upon the mammoth for a livelihood. As far as we know, they are the only record available of the earliest "Pennsylvanians," and there are several reasons for believing that they are relics of the first settlement of this region.



CHANGES IN FLINT TOOLS DURING THE PALEO-INDIAN EPOCH. Idealized sketches of the major tool types from three stages of the Paleo-Indian epoch. In the top row are tools of the Early Paleo-Indian period, based on data from the Shoop Site at Enterline, Dauphin County. In the middle row are tools of the Middle Paleo-Indian period, based on data from the Bull Brook Site of Ipswich, Mass. In the bottom row are tools from the Late Paleo-Indian period, based on data from the Wilhelm Site in Lebanon County, the Reagan Site at St. Albans, Vermont, and the Lindenmeier Site in Colorado.

In the first column (left) are fluted spear points. In the second column are side scrapers, used as skinning tools and spokeshaves. In the third column are end scrapers, used as planing tools in shaping wood. In the fourth column are knives. In the fifth column are engraving tools or perforating tools and drills. Drawings not separated by a line are different views and sections of the same tool. Cross-sections are lined. The actual specimens are about five times as large as the drawings.

Later Paleo-Indian cultures, both of Middle and Late periods, are known in the West and in parts of the East, but only scattered traces of them have been found in Pennsylvania. The Folsom spear point, a small fluted point which has been studied most extensively at the Lindenmeier Site in Colorado, is the most widely publicized of these later tools, and is about 10,000 years old, by no means as ancient as many of the fluted spear points. Folsom points are not found in Pennsylvania, but certain smaller types of fluted spear points found here are believed to be of about the same age. One of the most important projects of eastern archeology at the present time is the discovery and study of more of the places where Paleo-Indian peoples lived and left their tools and debris. Our studies of the ways of life in these ancient times have begun only in the last few years.



SCHEMATIC DRAWING OF A FLUTED SPEAR POINT

THE ARCHAIC EPOCH

The man of the Archaic epoch, who hunted the animals which still exist, apparently could not make ends meet or keep his belly full by the game he took with his spear. Thus the earliest Archaic cultures which have been found in New York and in the West represent people who often lived on plant foods, especially porridge made from acorn flour and meal from other seeds. The great changes in American life which characterized the Archaic epoch were: greater dependence on foods which did not come from hunting, especially plant foods; abundance of stone grinding tools which were used to make flour from seeds; the everyday manufacture of tools from non-flinty stones by battering and grinding techniques (which did not replace flint chipping, but were used along with it); and the ordinary use of stone axes and other chopping tools of several types.



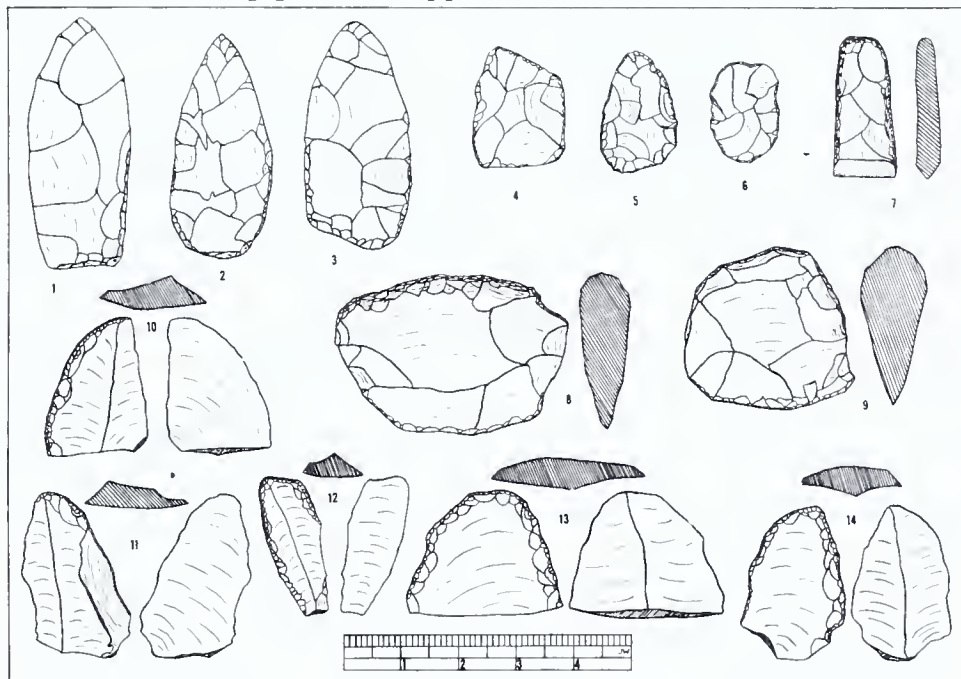
THE SPEAR THROWER, once a widely used tool, survives in few places today. The Tarascan Indian of Mexico still uses this archaic tool, but only to hunt waterfowl for religious feast-days.

All of these details of life were innovations, and were things which seem to have been completely unknown to the Paleo-Indian peoples. Each item on this list represents an invention or a series of inventions, a gain by mankind in efforts to make a better and more secure living from the world about. All of these new methods in making a living may have been invented in the old world and carried here by new immigrants; they may have originated here; but they were also invented at nearly the same time in several parts of Europe and Asia. Regardless of their origin, they are good examples of the ancient roles of invention and innovation in improving the lot of man. In later Archaic times, the Indians made other important advances, which included effective fishing methods, the use of river clams and ocean shellfish as food, trapping devices, and a special type of hunting tool, the spear thrower, which will be discussed later.

THE EARLY ARCHAIC INDIANS

We now recognize two periods within the Archaic epoch, the Early and Late Archaic periods. It is very likely that these should be divided up into a great many separate times, since we know relatively little of these remote ages and are only beginning to glimpse the great variety of culture types and tool forms which were the product of Archaic man. The early Archaic hunting tools which survive are heavy spear points chipped from many different stones, some of them from flints, but most of them from coarser materials, even river pebbles. They are crudely formed, as compared to earlier and later tools, and they usually have a tang for lashing to the shaft. The distinctive thing about the Early Archaic spear point is the lack of any notching for the lashings; these spears have straight or tapered stems.

The other ordinary tool of Early Archaic man was the chopper, a sort of cleaver or heavy knife about as large as a man's hand, probably used in butchering game. Choppers are usually very crude, and were,



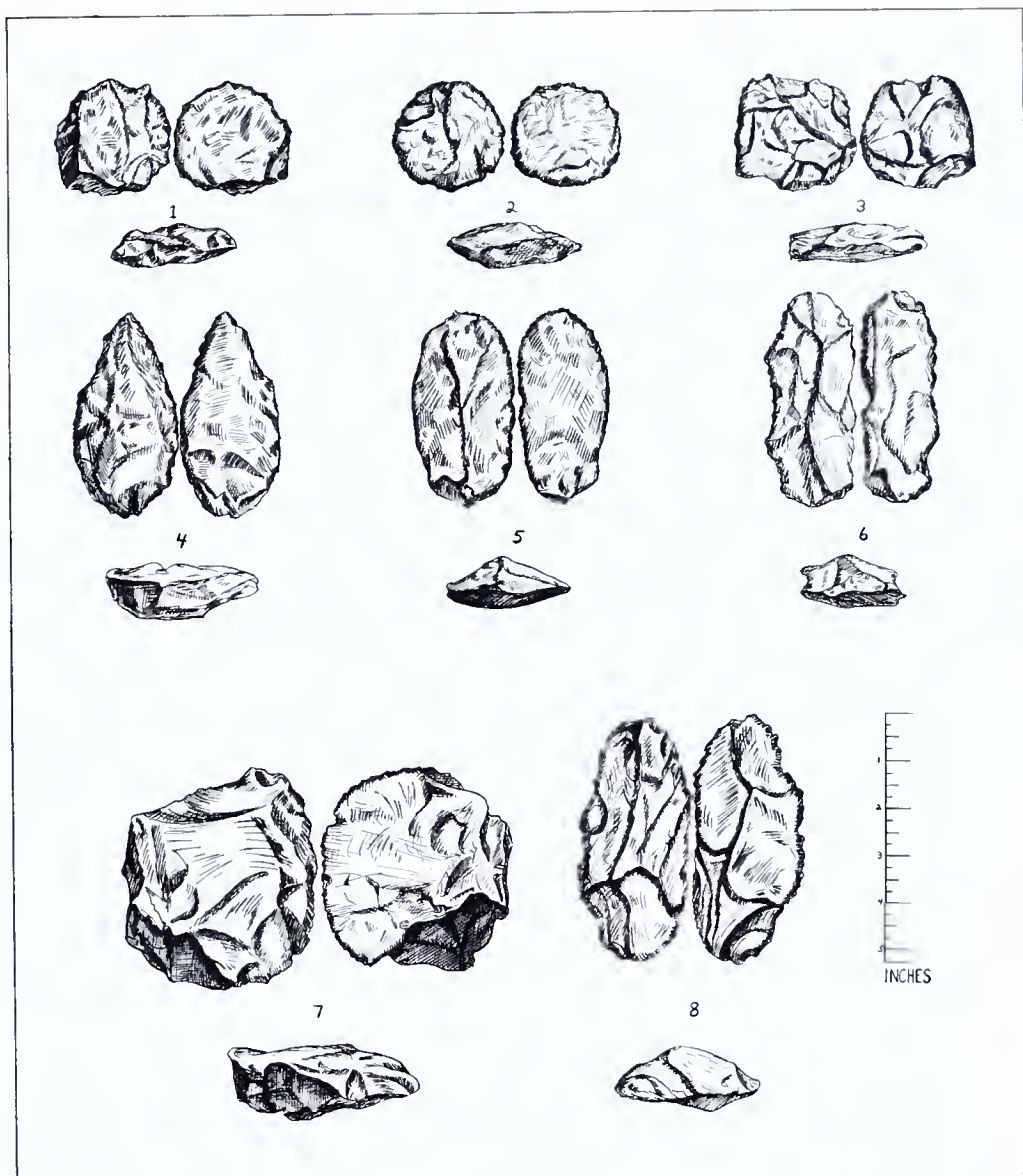
THESE TOOLS OF THE EARLY ARCHAIC PERIOD come from the DeTurk Site at Neversink Station, Berks County. All were chipped from quartzite which the Indians obtained from the mountain slopes at Sally Ann Furnace, Newmans-town, and from the Welsh Mountains in Lancaster County. Nos. 1-3 are spear points, the bases of which were dulled by chipping a blunt edge which would not cut the cords lashing the point to a spear shaft. Nos. 4-6 are knives with edges worn by cutting and skinning. No. 7 is an adze blade, one of the two oldest ground stone tools found in Pennsylvania. Nos. 8-9 are choppers, probably used in butchering game. Nos. 10-14 are scrapers.

ordinarily, crudely chipped from coarse-textured stones rather than from flint. They were the ancestors of all later stone axes. Scrapers or beveled tools are not common in most sites of this age, and they are most notable for their crude workmanship. Sites of this period are as yet poorly known, and are all believed to be more than 6,000 years old. Early Archaic tools are remarkably clumsy and poorly made as compared to the earlier implements of Paleo-Indian times. These people had made one important advance in stone technology, however; they shaped hatchet blades from hard shale and granite by battering away the surface of the rock with a cobblestone until it was of the desired form, and then smoothed the surface and sharpened the edge by grinding on a whetstone. The earliest of these hatchet blades were probably improved types of the rough choppers, and they were probably most useful in dismembering game. The earliest grinding stones and pestles, apparently used in making flour from acorns and other seeds, also appear at this time.

THE LATE ARCHAIC INDIANS

The Late Archaic period is believed to have begun slightly more than 5,000 years ago and to have lasted about 2,000 years. People were not numerous in North America before this time, and the relics of their existence are not abundant, but the Late Archaic peoples seem to have been the first really successful and populous citizens of our area. Spear points of this period are more numerous than all other kinds put together, and one is apt to be found on any field or in any garden in the State. The vast majority of the campsites from which we collect Indian relics are of this age. The tools of this period are greatly varied, and most of the ordinary types of relics which are familiar to us are really the particular tool types of these times. The spear points range from very small to very large, but they all are characterized by a tang of some form or other which has crude, broad notches or constrictions to receive the lashings which fastened the flint tip to the spear shaft. The majority of them were not used on lances (stabbing spears) but rather on javelins which were flung with the aid of a special hunting tool, the spear thrower, which is described later. The ordinary "tomahawk" of our collections, the axe with a groove to hold the handle, was the common woodsman's axe of this period, and was apparently not used in earlier or later times. Most of the stone pestles, the so-called "corn grinders," belong in this period, and were used for crushing acorns, not corn, into flour.

The man of Late Archaic times used every food resource he could find; he was a hunter, trapper, fisherman, and collector of wild plant



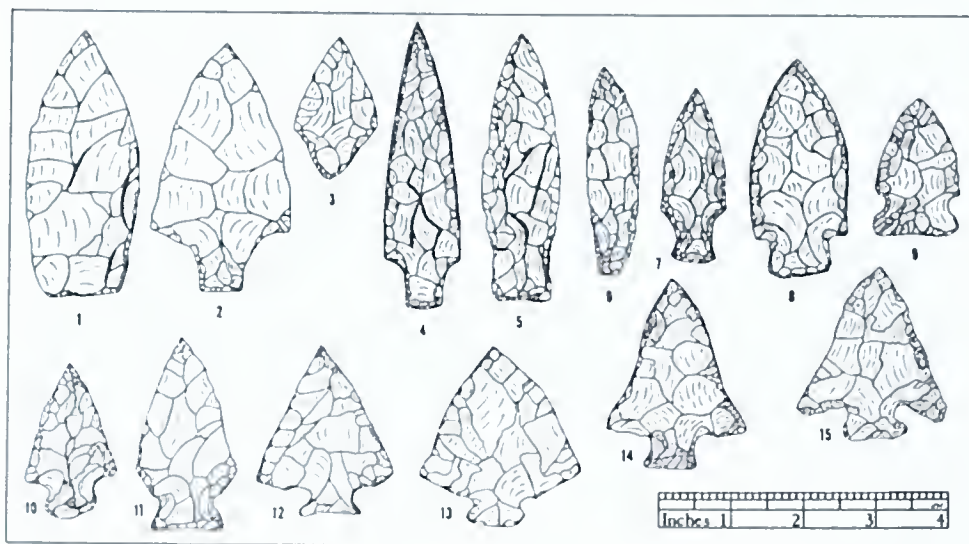
EARLY ARCHAIC CHOPPERS FROM EASTERN PENNSYLVANIA, probably all more than 7,000 years old. Nos. 1-3 have been continually resharpened, and are much smaller than when they were first put to use. The large chips knocked off in shaping the chopper were used as knives. Nos. 4-5 show no signs of use or resharpening, and were apparently lost where they were made. Nos. 6-8 are at intermediate stages of use and resharpening. Nos. 1-2, of Hardiston quartzite, come from the Reading area. No. 3, of aporhyolite from the Gettysburg area, was found at the Long Site in Lebanon County, where choppers occur with heavy-stemmed quartzite spear points (see illustration, page 16, No. 2). Nos. 4-5 come from the mountainside at Sally Ann Furnace, Berks County, where the Early Archaic peoples broke up the Hardiston quartzite boulders to make tools. No. 6, of Triassic hornfels (so-called argillite, a clay baked into rock by heat from lava), was found at Kintnersville, Bucks County. No. 7, a very unusual specimen made of Pennsylvania jasper quarried at Macungie, Lehigh County, was found at High-spire, Dauphin County. No. 8, made of aporhyolite, was found at Fort Loudon, Franklin County.

foods. In Western Pennsylvania he sometimes dug river clams, but he apparently did not use shellfish in more easterly areas. His burials and the skeletons of his dogs have been found and studied in large numbers; we have already described his bones as identical with those of later Indians, and his dog deserves more complete discussion in a somewhat later section of this booklet. There is no need to describe all of his tools in detail, but we should mention the most important of the hunter's implements and indicate how they were used.

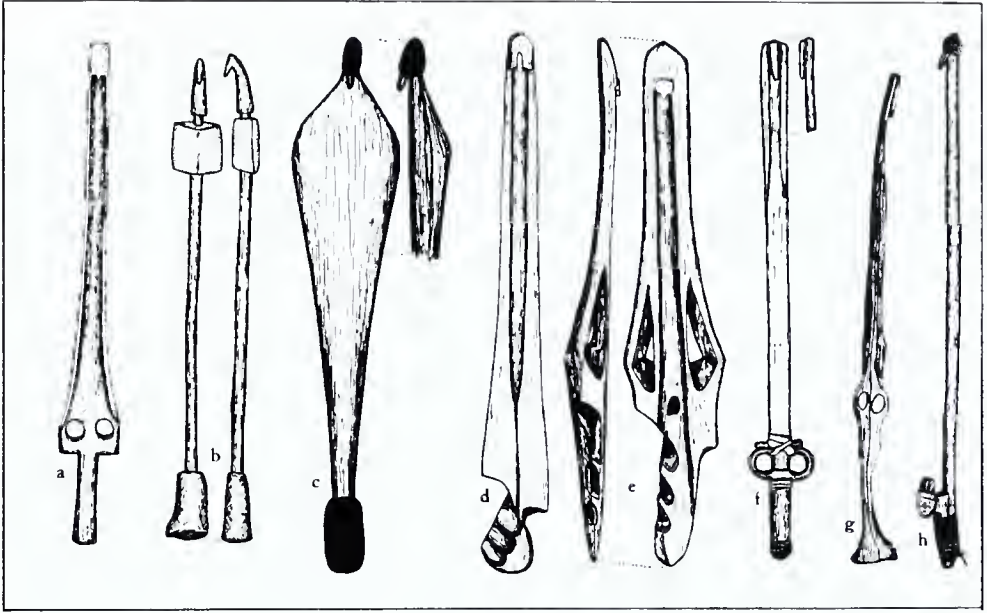
ARCHAIC HUNTING TOOL.—THE SPEAR THROWER

Our Indians had not yet learned to use the bow in Archaic times, and the lance or stabbing spear was no longer the usual hunting tool as it had been in Paleo-Indian times. Instead, the Archaic hunter killed his game with a light javelin, which was propelled by a lever-like tool, the spear thrower. This tool is somewhat difficult to explain, because we use nothing that in any way resembles it, and its mechanical principles are not familiar to the ordinary person. Nevertheless, it was at one time an important and ordinary implement for hurling spears, used by many peoples of the world. It was the weapon which Aztec warriors used against Spanish soldiers during the conquest of Mexico. The spear thrower may still be seen in use today among Eskimos and among the aborigines of central Australia.

The spear thrower is a short bar of wood, about two feet long, with a handle at one end and a hook at the other. The hook fits into a



SUSQUEHANNA VALLEY SPEAR POINTS of the Early Archaic period (Nos. 1-3), Late Archaic period (4-10), and Transitional period (11-15), drawn to show chipping patterns.



SPEAR THROWERS FROM VARIOUS TIMES AND PLACES. "A" is a Tarascan spear thrower from Mexico. "B" is a reconstruction of a Late Archaic specimen of the eastern United States. "C" is a paddle-shaped wooden thrower from Australia. "D" is a northern Alaskan Eskimo specimen. "E" is an Eskimo thrower, more than 500 years old. "F" is from Arizona; "G" is from Florida; "H" is from coastal Peru.

socket at the back end of the spear shaft, and the spear is thrown by slinging it from this hook. The spear thrower aids the thrower in several ways: it lengthens the arm by a couple of feet, vastly increasing the length of the arc by and the velocity with which the spear is thrown; it magnifies the turn of the wrist in throwing a spear; it permits all the thrust to be delivered to the butt of the spear, rather than to the middle of the shaft (as in hand-throwing), so that less force is lost; it permits weights to be added to the hook end of the spear thrower, so that this lever can be swung with great momentum, somewhat like a golf club. Modern primitives, Eskimo and Australian, who use the spear thrower, handle the tool with great accuracy and skill, and are able to hurl a spear with tremendous force, enough to drive a spear quite through a kangaroo or bury a harpoon deeply in a seal.

Archaic spear throwers of the eastern United States are known only from harder parts of the tools which have survived, the wooden shafts having long since rotted away. However, these hard parts, stone weights and antler handles and hooks, have often been found together in graves, with their holes lined up as if they were set on a wooden rod. A great variety of stone weights for spear throwers are found; the com-

monest, called a "banner stone," resembles a double-bitted steel axe, with a drilled shaft hole. Banner stones were used only during the Late Archaic period; weights of other types, especially those called "birdstones," were used in somewhat later times. The bow did not appear in North America until a much later date, probably not more than 2,000 years ago.

THE INDIAN DOG

Indian dogs of the Archaic epoch were exactly like those kept by Indians in historic times and seen and described by our ancestors; these breeds are now, however, completely extinct. They were small wolf-like animals, ranging in size from that of a beagle to that of a fox. They did not bark like our dogs, but howled in wolf fashion. Our forefathers thought they were merely a domesticated fox or coyote, but the bones of these dogs prove that they did not originate from any American fox or wolf but were a true dog of primitive type originating in Asia. They were most closely related to the wolves of Asia, and the skeletons almost never show any evidence of cross-breeding with American foxes. The Indian dog closely resembled the dingo of Australia or the primitive dog of the Andaman Islands of southern Asia, and was brought here more than 5,000 years ago. Neither was it at all closely related to the Eskimo husky or malemute, or to the Siberian dog of the Alaskan Eskimos; these are much more advanced and specialized breeds. Unlike the Indian dog, the Eskimo dogs do frequently breed with wolves, and are much more courageous, aggressive, and useful dogs than were the Indian breeds. The Indian dog was a half-wild scavenger who was completely dependent upon humans for food and survival.

Indian dogs were kept in large numbers during Archaic times, and do not seem to have been so numerous in later times. However, at the time of the first white explorations, the Hurons of Ontario kept huge numbers of dogs; these people formed such a dense population that they had nearly exterminated the deer and other game of their area, and the dog was their major source of meat. As far as we know from early accounts and from the archeology, the Indian dog was kept for only a few purposes. Most important, dogs were eaten, and this was probably their main value. They were also kept as scavengers, to clean up garbage and excrement about the camp. They were of some value as watchdogs, to set up a howl when prowlers appeared. They were apparently of almost no value in hunting; they lacked the bred-in abilities of a good field dog, and they were kept by people who had never developed methods for hunting with dogs. On the

western plains, they were of limited use as pack animals. They were not fed meat from the chase, but lived on garbage, mice and other such creatures, and fish. At times they seem to have fed entirely on fish. In excavating Indian sites, we frequently find dog manure preserved; it is made up almost entirely of partly-digested fish bones. We believe that dogs were not kept as pets, but as scavengers, as an extra source of meat, and as a food reserve to be eaten in famine times.

TRANSITION, ARCHAIC TO WOODLAND TIMES

About 3,000 years ago, drastic changes in Indian ways of life occurred in all parts of the East. During this Transitional period in Pennsylvania, Indians lived mostly upon the rivers, apparently taking up an intensive canoe life. They made very distinctive tools which can scarcely be mistaken for those of any other age. Flint spear points are of several broad-bladed forms, and only a few other forms of flint knives and scrapers were used. These are the earliest sites in which large numbers of notched-pebble net sinkers are found, suggesting the first general use of fishing nets. Almost none of the stone tool shapes of earlier times were still in use. Grooved axes were no longer made, but flat adze blades of granite were apparently used in making dugout canoes.

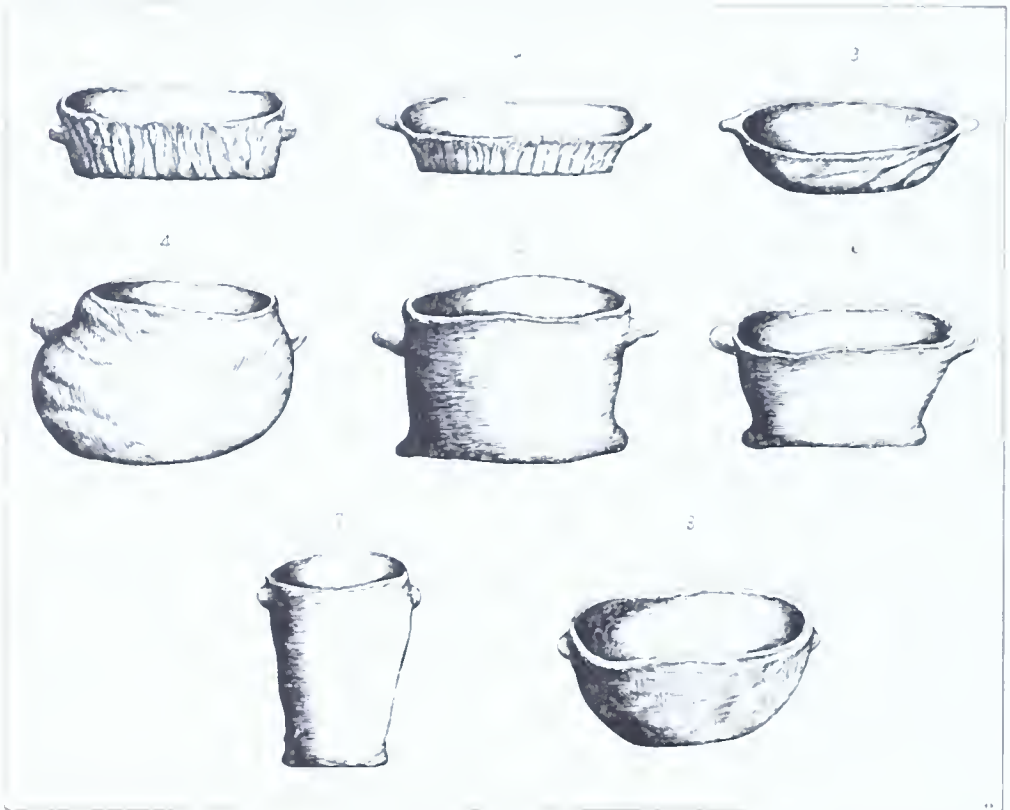
For the first time in America, cooking vessels were in use. These were not made of pottery, but were carved from blocks of soapstone; broken pieces of the soapstone kettles are found in abundance on larger sites of the Transitional period. The kettles were rectangular, box-like vessels with flat bottoms and a lug or handle at each end.

Pieces from broken kettles were cut into beads and were made into weights for the spear thrower. These weights are rectangular slabs of stone with two or four holes drilled through them, or four notches sawed into the edges, and were lashed to a flat wooden spear thrower, in contrast to the earlier banner stone, which had a shaft hole for a round rod.

The sites of this age are almost always on the shores of large streams, and are usually littered with flint chips which are thinner and larger than those of any other times, with net sinkers made by knocking notches into the ends of a pebble, and often with broken pieces of soapstone kettles. Canoe anchors (large notched boulders) and boulders with cup-shaped holes worked all over their surfaces are also found on these sites. The soapstone was quarried from an outcrop near Christiana, Lancaster County, and most of the flint used in the Susquehanna Valley during this period came from Caledonia, Franklin County.

FARMERS OF THE WOODLAND EPOCH

During the Transitional period, our Indians apparently gave up Archaic hunting patterns, in which men cruised the hills and countryside on foot, and began to follow the rivers for fish, migratory wildfowl, and river-front game. In all later times they continued to inhabit the river valleys, rarely settling away from main streams and making only hunting trips into the back country. Men of Transitional times depended upon their canoes to carry cumbersome household goods, kettles, nets, and flint supplies over vast distances. Men of Archaic and Paleo-Indian times could not carry such bulky paraphernalia, and traveled with only axe, clothing, and hunting tools. None of



THE EARLIEST COOKING VESSELS USED BY PENNSYLVANIA INDIANS. Nos. 1-4 are carved soapstone kettles of the Transitional period. Nos. 5-6 are ceramic vessels of the same age, modeled from clay mixed with crushed soapstone, of the type Marcy Creek Smooth. These ceramic vessels are found throughout eastern Pennsylvania, New Jersey, and the Tidewater and Piedmont regions to the south. No. 8 is a carved silstone bowl of the type made in western Pennsylvania and Ohio during the Transitional period. No. 7 is the earliest ceramic cooking vessel of the upper and middle Ohio Valley, made during Early Woodland times, of the type Fayette Thick and Half Moon Ware.

these peoples seem to have ever built houses or tarried long in one place.

Almost 3,000 years ago, however, farming began, and even in its first stages agriculture seems to have completely modified Indian life. It made sedentary life possible, it led to housebuilding and town growth, and made possible much larger populations by lessening the frequency and intensity of starvation. We know very little yet of the early stages of agriculture in the East, but have enough information to outline the growing importance of farming, the introduction of new and improved crop plants, and the constantly increasing effects of farming on everyday life.

Indian agriculture was axe-and-hoe farming. Mature, full-grown hardwood forest, especially walnut and hickory on the river flats, was cleared with the axe, and yielded fertile, weed-free fields. Cultivation consisted in scraping with the hoe. Crops were planted in hills as we sometimes plant corn, not broadcast or rowed. Houses and storage structures were built adjacent to the fields, and gardens became the focus of settlement, the place where the hunter lived even though he might travel more than a hundred miles a week in pursuit of game. Farming was entirely the affair of women, probably because women had first discovered and developed crop plants. Field-grown foods quickly became the staples and dietary mainstays of the community.

THE WOODLAND EPOCH

In early Woodland times slightly before 500 B. C., Indians lived in single households along our rivers, each family in a single farmstead surrounded by its fields. We know very little of these settlements because each one was a mere single hut, and only a few of these hutsites have been excavated. In Ohio and other places, they frequently raised burial mounds over these houses, so that the Adena culture of that area is much better known. In Pennsylvania, the houses of this period were sometimes dug below ground level, probably for greater warmth in the winter. There are few relics found at sites of this age, mainly because the Indians were scattered in so many tiny family groups, and each site represents so few people.

The crop plants of this period have not yet been found in Pennsylvania sites, but their charred remains have been found in Ohio sites of the same age, and dried materials are known from Kentucky rock shelters which were occupied at the same time. The most important plant was the cultivated sunflower, represented by seeds and heads which closely resemble the so-called Russian sunflowers of our seed

catalogs. The sunflower is of interest for several reasons. It is an important crop plant, one of the best food-oil sources of the plant world, and is an extremely rich and nutritious food. It is also the only crop plant of modern commerce which had its origin in the eastern United States, having been bred from a native wild plant of little utility. Corn and beans seem to have been totally unknown to earlier Indian farmers, but a number of other grain plants of local botanical origin and of types no longer grown have been found in Kentucky sites of Early Woodland age. Most of these are pigweeds and amaranths, with seeds many times larger than wild forms. These may have been grown for a time by later Indians as well, but the seed has been lost. The sunflowers, on the contrary, were grown by all later Indians; all of the modern varieties of sunflower which we grow, and which we know as weeds in the West, originated in seed stocks which our ancestors got from the Indians of the eastern United States. Farming in early times in the United States seems to have been of local origin, with cultivated plant varieties developed from local wild plants. Later, more productive plants, such as maize and beans, were brought in



THE OLDEST KNOWN PICTURE OF AN INDIAN TOWN of the eastern United States is a watercolor by John White of the ill-fated Roanoke colony, painted in what is now Virginia in 1587.

from tropical America and came to largely replace the old local crops.

Apparently tobacco was also grown in Early Woodland times, for it has been found in one Kentucky rock shelter with objects of this age, and large tubular pipes of stone are among the commonplace items of the Adena culture of Ohio and Pennsylvania and on New York sites of the same age. These tubes, generally made of stone from Portsmouth, Ohio, are probably the world's oldest smoking pipes. The tobacco used in them was not the tobacco we use, which came from Central America, but a local species which is still grown by a few Indian communities. This tobacco of our area, *Nicotiana rustica*, is not a wild plant, but is known only in cultivation and its wild ancestor has never been identified.

Other tools of Early Woodland times in Pennsylvania include narrow-stemmed spear points, adze and hatchet blades, bar weights used on the spear thrower (many of them representing birds), and pottery formed crudely from clay and fired barely hard enough to cook in. The pots of this period were round-bottomed, bag-shaped vessels in Pennsylvania; flower-pot-shaped vessels with a flat base were made in Ohio. Apparently the appearance of cooking vessels during Transitional times had represented the introduction of new cooking methods, and in all later times Indians seemed inclined to boil most of their foods into soups and stews.

MIDDLE WOODLAND FARMERS

In somewhat later times, after 500 B. C., the general patterns of Indian life continued much as they had been, except that many minor changes and improvements in the arts of life can be detected. Spear points are smaller and more finely chipped, and are generally very delicately notched and often sharply barbed. Spear thrower weights are not very evident in most sites, and disappear completely during Middle Woodland times; at the same time, small flint points of simple forms first appear, and we believe the bow and arrow first appeared on our scene during these times.

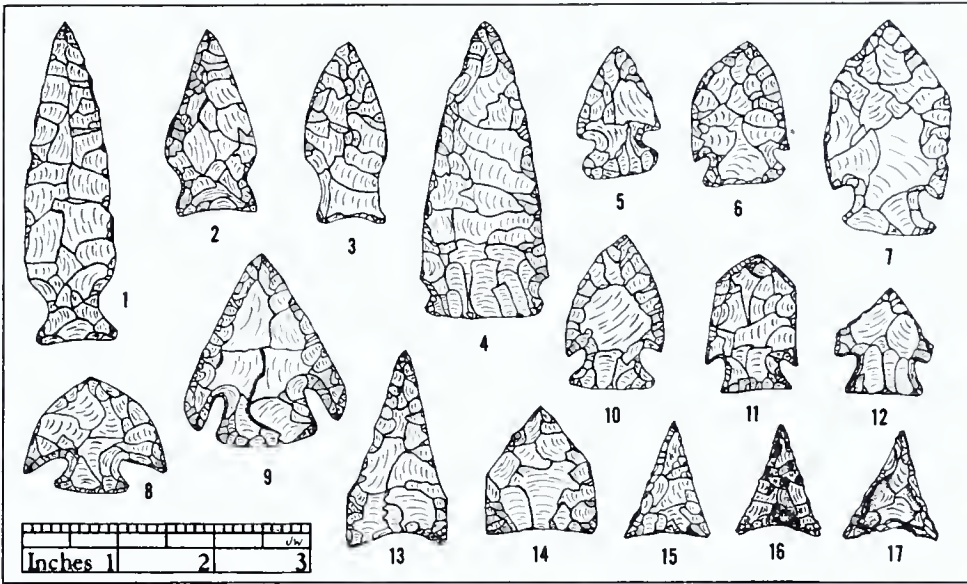
The same farmhouse style of settlement seems to have continued, at least in Pennsylvania, and sites are difficult to locate and study. Charred corn has been found in sites of this period in other states, but it is so poorly in evidence that it could not yet have attained the primary importance that it held as a grain in later times. Gourds are first identified with certainty in this period, although they were probably also grown earlier. Pottery fragments are much more numerous than in earlier sites. Pipes are quite as abundant and occur

in several shapes. They were made both from pottery and from stone, and are of elbow forms and other more elaborate patterns.

With the close of Middle Woodland times, sometime between 300 A. D. and 700 A. D., Indian life in our area was much like that of the last surviving Indians, except that further effects of new resources become apparent. Populations were not yet of large size, and town life had not begun, although maize, beans, and pumpkins, the great plants of local Indian agriculture, were being grown. The bow had replaced earlier hunting tools, a sedentary house life was well established, hunting had become a subsidiary part of the economy, and the seeds of a very different sort of civilization than that of the hunter had been planted. In the Illinois Valley, large village sites of this period mark the spots where fairly dense town communities were settled on rich land. In the Ohio and Scioto valleys, communities of the same period were little hamlets, by no means as sizable as those down river. In Pennsylvania, few sites of Middle Woodland times seem to have been occupied by more than two or three households. Our Indians were country cousins to peoples of the Mississippi Valley.

FARMING VILLAGES OF THE LATE WOODLAND PERIOD

Sites of the Late Woodland period, which was the last stage preceding European settlement, are marked everywhere in the East and eastern Plains by an abundance of pottery fragments and by one shape of stone arrowhead, a simple small triangle without notches or stem. The bow had completely replaced the spear thrower. It is very likely that only the small triangular arrowhead was ever used with the bow in our area, and that projectile points of other shapes had other uses. The only chopping tools are simple celts and adzes. Scrapers and planing tools are crudely beveled chips of flint. Knives are leaf-shaped chipped flint forms (the point was set in the handle, and the round base was the cutting edge). Pipes are quite abundant, and occur in a huge variety of forms in stone, pottery, antler, and wood. Hoes are sometimes chipped from shale, sometimes shaped from the deer shoulderblade or a slice of elk antler. Net sinkers, made by notching the side edges of a thick pebble, hammerstones, anvil stones, grinding slabs, and pebbles with pitted sides (of unknown use) are very common. Some sites also have awls, beads, needles, and similar tools cut from bone. These were practically the only tools used in this period; Late Woodland sites lack almost every type of tool that the average person recognizes as an Indian relic. The vast majority of the relics from our fields are much more ancient, and in fact most of them date from the Archaic epoch.



SUSQUEHANNA VALLEY SPEAR POINTS of the Early Woodland period (Nos. 1-3) and Middle Woodland period (4-14), and arrow points of the Late Woodland period (15-17).

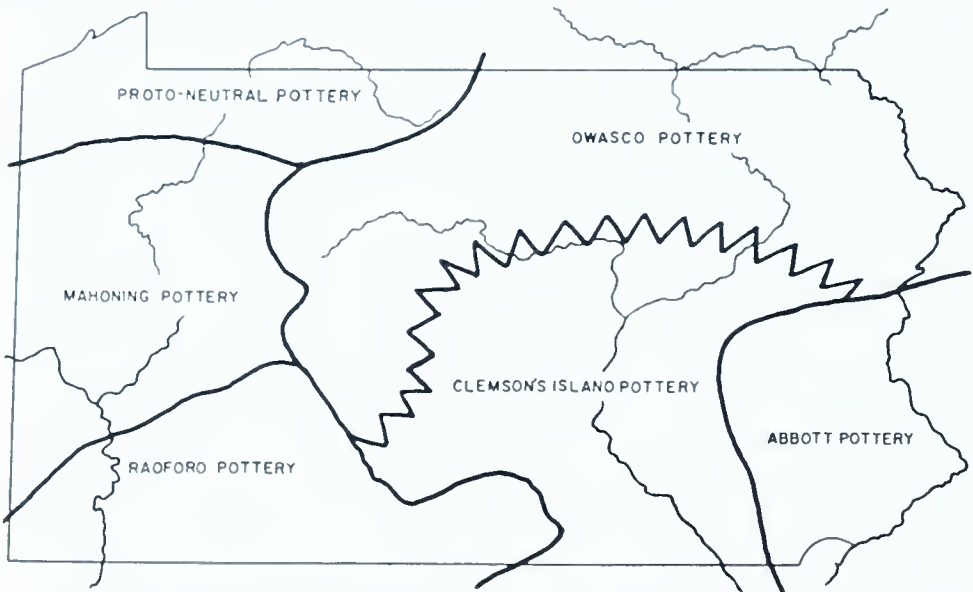
Almost all Late Woodland sites are found on river flats, generally on slightly elevated spots, but almost always on very low ground. There are exceptions in southwestern Pennsylvania and some other areas, but these are usually in regions of peculiar topography. Most of the sites represent small hamlets, probably made up of a half-dozen houses clustered on a high spot in the middle of the Indian fields, and usually very close to the riverbank. Farm crops were grown in large quantities, and we find charred maize and beans, and sometimes pumpkin fragments, in practically every Late Woodland site where we dig. It is almost impossible to miss the charred corn in sites of this age, whereas it can scarcely be found in earlier sites. We also invariably find bones of deer, bear, turkey, wildfowl, small animals, and dogs, and the shells of river mussels in these sites; animal foods do not appear to have had nearly the importance of cultivated plant foods in this period, however, and arrow points are not abundant as compared to the frequency of spear points in earlier sites.

Houses in this period were round, oval, or rectangular structures, made by driving posts into the ground for joists, framing rafters over them, and covering the whole structure with bark-sheets or mats in shingle-fashion. Very few of these settlements were fortified by a ring palisade of logs driven into the ground, but such town walls sometimes occur as evidence of warfare. By Late Woodland times, Pennsylvania

Indians had made vast gains in population, economy, and security over that known to their forefathers in ancient times of hunting economy. However, they were still rustic provincials compared with their relatives in the Mississippi Valley, where the same processes of increased food production and growth of population had progressed much further. In fact, even in Ontario and New York, Indian communities of much larger size and more intensive agriculture were common at this time. In the Ohio and Illinois valleys, and in southern Ontario, big peasant villages of forty or fifty houses, occupied by perhaps 500 persons, and often fortified, were surrounded by hundreds of acres of tilled ground. On the Mississippi, huge walled cities, some of them covering more than sixty acres, were built on the broad stoneless river bottoms, surrounded by vast expanses of cornfields and gardens. We know of one such site in Indiana, one in Illinois, and several in Missouri, but the really notable examples are in Arkansas and nearby states, in the valleys of the Mississippi and Red rivers. Here people lived a stable urban life, with a sizable crop production, extensive fisheries, almost no hunting, and sporadic warfare.

THE COMING OF THE WHITE MAN

This was the complexion of aboriginal America when the first Europeans came. Farming was supreme from Florida to Massachusetts, and west to the heads of the Missouri and into the southwestern desert. The bow was everywhere the major tool of the hunter and



AREAS OF DIFFERENT CULTURES WITHIN PENNSYLVANIA in the earlier part of the Late Woodland times, about 1000 to 1200 A. D.

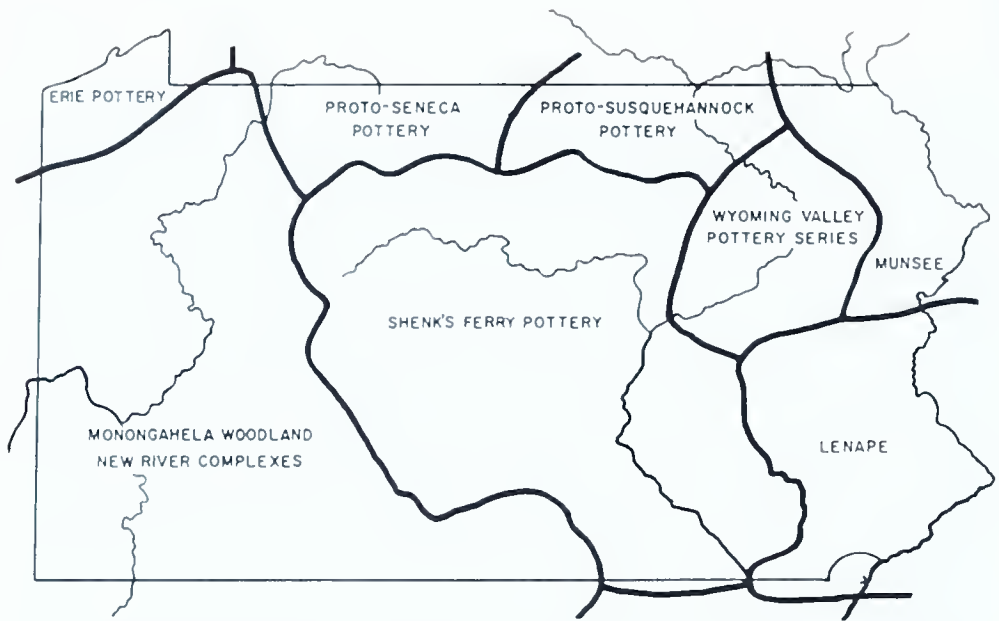
warrior, hunting was everywhere an economic pursuit of very secondary importance, and warfare was sporadic, poorly organized, and generally indecisive. The eastern portion of what is now the United States was a prosperous, well-populated, and peaceful countryside.

We are not certain that any white explorer ever saw this pattern of native life while it was intact; if any did, he certainly left no record of it, for all that we know of such matters comes from archeology, not a scrap of it from history. At the time of the discovery of America, the centers of native life in the present United States were on the great waterways, and all of the populous settlements of the interior seem to have been abandoned before any white man set eyes on them, before the first glass bead or brass trinket came to these towns by trade. Even though no European had trod the walks and plazas of these towns, he had brought death to the communities and their people. Had he been there to watch, he would have seen native civilization dissolve as frost before the sun, even as it did in regions where whites had overrun the Indian settlements. All the Indian towns of western Pennsylvania, Ohio, West Virginia, and Kentucky, all the large towns of the Mississippi, the towns of the Illinois, the population centers of the Tennessee Valley, and the large stockaded towns of the Red River Valley had vanished completely before white observers appeared.

In almost every case it is nearly impossible to even decide who, among the Indian tribal remnants found later in these regions, were the inhabitants of these elder stable communities, and who were newcomers who had fled from another section.

The fate of the Indian at the hands of the white man was far worse than the suffering caused by the ravages of nature. Despite the fact that the prehistoric Indian buried half his children as infants, had worn out his teeth at thirty, and rarely lived to be forty, he was a part of a growing population, he lived a short but worthy life, and he was subject to few infectious diseases. In Seneca tradition, the Devil had given the white man Columbus four objects, four symbols, to give the Indian. These were the bottle, the violin, a deck of cards, and a rotten human thighbone, representing the destruction of integrity by liquor, the destruction of values by frivolity, the destruction of subsistence by fraud, and the destruction of the people by disease.

Long before there were any seaside European settlements in North America, there was extensive commerce between seamen and Indians on the shores of the Atlantic and the Caribbean. Indian populations along these shores were never large, for the country was poor; by the



THE DISTRIBUTION OF TRIBES AND CULTURES IN PENNSYLVANIA at the dawn of American history, about 1550 A. D. All but the Lenape and the Munsee had disappeared before the historic record began; their Indian names, languages, and political structures are unknown.

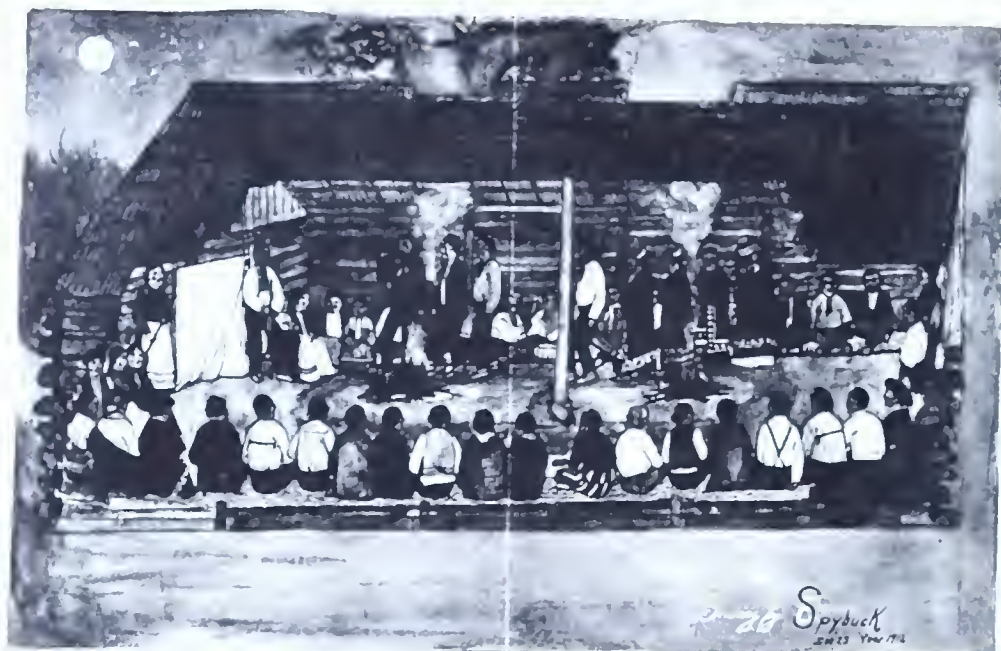
time the settlers came the Indians there had been all but wiped out, the victims of the white men's diseases. Indians from the nearby interior were also drawn to the coast for trade, and they and the remaining coastal peoples made up the thin population fringes of the prosperous interior of the continent. All of the microscopic parasites of humans, which had been collected together from all parts of the known world into Europe, were brought to these shores, and new diseases stalked faster than man could walk into the interior of the continent. Typhoid, diphtheria, colds, influenza, measles, chicken pox, whooping cough, tuberculosis, yellow fever, scarlet fever, and other strep infections, gonorrhea, pox (syphilis), and smallpox were diseases that had never been in the New World before. They were new among populations which had no immunity to them, and where crowded town life favored rapid contagion. Great epidemics and pandemics of these diseases are believed to have destroyed whole communities, depopulated whole regions, and vastly decreased the native population everywhere in the yet unexplored interior of the continent. The early pandemics are believed to have run their course prior to 1600 A. D.; later epidemics probably never approached their severity, although some, like the 1910 smallpox outbreak among the Oklahoma Seminoles, nearly wiped out whole tribes.

In every area, the earliest historical sources from the frontier period present us Indians who had been long accustomed to face-to-face contact with whites, who were a mere remnant of earlier populations, and whose whole way of life had been vastly distorted and damaged by the economic and physical effects of European civilization. We are gradually coming to know a great deal about Indian life in the Colonial period, but this information is being derived from excavations of Indian sites of this age, not from historical sources. We are becoming more and more aware that it is sheer folly to expect much reliable or significant information about Indian life from the sources of history; even when our forefathers knew anything of such matters, they neither cared about it nor recorded it. Not the historical documents, but the objects from Indian house sites of the seventeenth century, the guns from the graves, the pox-riddled skeletons, give us a reliable picture of the past.

EUROPEAN CONQUEST—THREE STAGES

There were three distinct stages or phases in the white conquest of North America. The first, the biological phase, had as its agent the microbe. The second, the commercial phase, had as its agent the Indian warrior. The third, the frontier phase, had as its agents the white borderer, trader, soldier, and settler. In the biological phase, Indian-European contacts were along the seacoast; small quantities of furs and European tools and trinkets changed hands, and sailors, lice, rats, fleas, and items of barter brought devastation by disease to the sparse coastal populations and indirectly to the large populations of the interior. Iron axes, glass beads, knives, and the brass scrap of this phase were carried all over Pennsylvania and New York; some trade goods of this early period are even found in central Ohio. This phase ended in the Northeast shortly after 1600 A. D., with the establishment of permanent trading posts and settlements along the Atlantic coast and in the valleys of the Saint Lawrence, the Hudson, the Delaware, and the Potomac. The biological phase of conquest had emptied the coastal regions for white settlement, and had so weakened the interior peoples that they were never able to push the whites out.

Just beyond the strip of land along the coasts which were actually settled by whites, peoples of the interior were able to pull themselves together and form a belt of Indian military power that long held white settlement east of the mountains. In the Northeast, there were three such nations or tribes, who formed a barrier between the white



THE DELAWARE INDIAN NEW YEAR'S RITUAL, held in a log ceremonial building as painted by Earnest Spybuck in 1912.

settlements and the western country; they were the Hurons of Canada, the Five Nations of New York, and the Susquehannocks of Pennsylvania. They formed large political alliances, they consolidated their total populations into a very few large fortified towns, and they became the major agents in the fur trade. They were so situated that they controlled all entries to the West, and every fur that came out of the great Interior Basin or central Canada passed through their hands. Ravished by disease, they still kept up their population and military power by absorbing the remnants of broken tribes from the East and by adopting huge numbers of captives taken in warfare. They began the systematic conquest of their western neighbors, and huge caravans of captives, loot, and fresh beaver hides from the rivers of the West poured into their towns. They became tremendously wealthy by native standards, were able to buy any and all of the tools and luxury goods which Europe had to offer, and quickly became Europeanized in technology—but in this respect alone. By 1640 A. D. they no longer made pottery in any quantity, but did their cooking in brass kettles; they no longer made arrowheads as they were now completely armed with muskets. These guns were turned upon peoples to the west, and by 1640 the upper Ohio and its tributaries as far west as the Scioto had been swept clean of all other Indians by Five Nations and Susquehannock war parties, and had

become a mere "beaver-hunting ground." Before 1700, these war parties had swept clear to the Illinois and the Tennessee. These people had, despite their wishes, become mere military agents of European commerce.

Traders did not come to their towns. Instead the people brought their furs down to port settlements, and carried back their guns, powder and lead, swords, daggers, axes, silverware, rum, linen shirts, and brass kettles. Few white men even set foot within their territories. At the same time, the three tribes who controlled the commerce of the West were locked in combat among themselves for exclusive domination of the frontier. The Five Nations defeated and destroyed the Hurons in 1648, and later destroyed the Susquehannocks in 1675.

By a series of accidents and changes in Russian and oriental taste, the bottom fell out of the European fur market about 1675, and no Indians anywhere ever again achieved the wealth and power that the Five Nations had gained at that time. Contributing to the decline was the virtual extermination of beaver in all areas within the reach of our Indians. Thus the great empty western tracks, the real "bloody ground" of American history, lost much of their previous importance, and they began to be settled by small, semi-sedentary groups of Indians of very diverse origins. Some of them were shattered remnants of once-important tribes who had long ago been torn loose from their moorings; Delawares, Munsees, Shawnees, Wyandots, Miamis, and Illinois. Others were Five Nations splinter-groups, dissatisfied peoples from New York who moved into new country, some of them because they favored French rather than English interests in the growing struggle for colonial power. These pro-French Iroquois gradually came to be called the Mingos, a word more generally applied as a name for any Five Nations language. Meantime, in the middle eighteenth century, the French-British struggle of the Seven Years' War became localized in the Ohio country, and once military penetration of this region had been effected, the whole trans-Allegheny realm was open to the flood of whites who carried the third phase of conquest west of the mountains, and thereby to the Pacific coast.

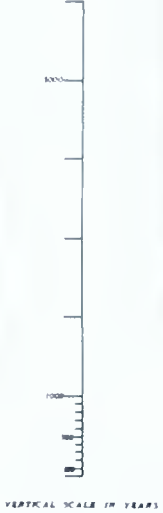
A frontier is not a boundary of settlement, but a boundary between two nations. Our frontiers were like the marches of Europe, regions at the periphery of white settlement and beyond the law and control of provincial or state governments, and at the weakest margin of Indian settlement, where the law and power of Indian nations could scarcely be enforced. Such tracts drew the outlawed, the lawless, the ambitious, the ne'er-do-well, and the adventurous from all directions.

FEDERAL PERIOD		1776 - PRESENT	Replacement of Native Races & Cultures
		COLONIAL PERIOD	Decimation of Native Populations
WOODLAND EPOCH 1,000 B.C - 1,550 A.D.		LATE WOODLAND PERIOD 500 - 1,550 A.D.	Town Life Large Populations Decline of Hunting Incipient Warfare Intensive Farming Pressure Flint Chipping Provincialism, Little Travel & Trade Simple Burial Ritual
'NEOLITHIC' TECHNOLOGICAL STAGE	PRODUCTIVE ECONOMY	MIDDLE WOODLAND PERIOD 500 B.C. - 500 A.D.	Village Life Elaborated Burial Ritual First Maize Intra Continental Travel & Trade Introduction of the Bow Arctic Asiatic Cultural Influences Expert Flint Chipping
		EARLY WOODLAND PERIOD 1,000 - 500 B.C.	Houses Sedentary Life Distant Trade Pottery & Pipes Pioneer Agriculture Sunflower Amaranthus Tobacco
		TRANSITIONAL PERIOD	1,500 - 1,000 B.C.
ARCHAIC EPOCH 6,000 - 1,500 B.C.		LATE ARCHAIC PERIOD 4,000 - 1,500 B.C.	Spearthrower & Javelin River Travel Shellfish Eaten Axes Forged Copper Tools
'MESOLITHIC' TECHNOLOGICAL STAGE	DIVERSIFIED ECONOMY	EARLY ARCHAIC PERIOD 6,000 - 4,000 B.C.	Hunting, Fishing, Gathering Nomadic Life Within Family Territory Woven Fabrics & Sandals Chipped Flint & Stone Tools Pecked & Polished Stone Tools Baskets & Bark Vessels Acorn Porridge Boiling in Barks by Heated Stones Chopping Tools Dog Domesticated
PALEO-INDIAN EPOCH 16,000 - 6,000 B.C.		LATE PALEO INDIAN PERIOD 9,000 - 6,000 B.C.	Big Game Hunting Lance, or Stabbing Spear Chipped Flint Tools Ground Bone Tools Fluted Spearpoints Spear Tang-edges Ground Highly Nomadic Life Meat Roasting Tailored Skin Clothing Flint 'Blades'
'UPPER PALEOLITHIC' TECHNOLOGICAL STAGE	HUNTING ECONOMY	MIDDLE PALEO INDIAN PERIOD	
		EARLY PALEO INDIAN PERIOD	

A TABLE TO
THE PRE-
HISTORY
OF THE
EASTERN
UNITED
STATES

VERTICAL SCALE IN YEARS

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The violence of the border insured that it kept moving westward, as weaker Indian communities on the west gave way and as stronger white communities on the east came to extend their law into the frontier.

There was never any such thing as "frontier law" in Pennsylvania, since any area within the Provincial grant was subject to a highly-refined legal system (and court and office structure), but there were abundant violations of this law in marginal areas where enforcement was difficult. Indians concerned with injustices in Pennsylvania ordinarily went to the courts or the governor about them, and often received better justice than is accorded natives in Arizona or Alaska today. The frontier in Pennsylvania, as elsewhere, was a tract which stood beyond the reach of law-enforcement agencies and straddled the limits agreed upon by the nations on each side.

Since the Allegheny was breached, and until the present time, America has had frontiers. The frontier became the mechanism by which Europe finally overran and consolidated aboriginal America, as the infantry consolidates territory already neutralized by more remote agents of warfare. Frontiers can be especially destructive of lives, dignity, and values, both of primitives and of settlers, and so it was on the frontier that the trap inevitably closed on native society and culture. The Indian, like the Australian aborigine and the Eskimo, may not have been completely destroyed as a human variety or race by this series of events, but he has long been doomed as a people and a distinct civilization. Mere vestiges of his society and culture have survived to the present day.

CONCLUSION

Thus the actual story of the Indian represents a long, slow development of culture, growth of population, and striving toward the fulfillment of human potential, brought to a catastrophic end by factors beyond the understanding of either white or Indian in those times. This story is one of tragedy rather than one of romance, of empire, or even of injustice; the sentimental interpretations stressing these three elements, so often repeated, are remote from a true picture of the Indian past. The growth of Indian culture and the step-by-step advance in the arts of life and in the control of nature, are similar to the achievements of other peoples of the world. The demise of Indian culture also parallels the fate of other primitive peoples, caught in similar traps by nature and alien societies. From the scholarly viewpoint of the archeologist, we reserve our greater interest

for what the Indian accomplished and for the forward steps he took, rather than for the circumstances surrounding the death of his culture.

SUGGESTED READING

There are several books which the general reader of Indian prehistory will find of value. A selection of recent interpretative essays, accompanied by excellent bibliographies, is Jesse D. Jennings and Edward Narbeck, eds., *Prehistoric Man in the New World* (Chicago: University of Chicago Press, 1961). The best recent study of the North American Indian, composed in a semi-popular style, is Ruth Murray Underhill, *Red Man's America* (University of Chicago Press, 1953).

A more scholarly book of essays, detailed and well illustrated, on the archeology of the region east of the Mississippi River is James B. Griffin, ed., *Archeology of the Eastern United States* (University of Chicago Press, 1952). Applicable to the eastern United States, and particularly to Pennsylvania and Virginia, is Joffre L. Coe, "The Archaic Cultures of the North Carolina Piedmont," American Philosophical Society, *Transactions*, New Series, LIV, Part 5 (1964).

The first major study of Indian culture in the Northeast, much of which relates to Pennsylvania, is William A. Ritchie, *The Pre-Iroquoian Occupations of New York State* (Rochester, Rochester Museum Memoirs No. 1, 1914). William A. Ritchie, *A Typology and Nomenclature for New York Projectile Points* (Albany: New York State Museum and Science Service, Bulletin 384, 1961) discusses types of points which occur in Pennsylvania as well as New York.

Publications of the Pennsylvania Historical and Museum Commission of interest are *Indians in Pennsylvania*, by Dr. Paul A. W. Wallace (1961), a historical view of the Delaware Indians in Pennsylvania; *Susquehannock Miscellany*, edited by John Witthoft and W. Fred Kinsey, III (1959), scholarly essays on the history and prehistory of the Susquehannocks in Pennsylvania; and *Indian Paths of Pennsylvania*, by Dr. Wallace (1965).

